MANAGING OUR NATION'S NUCLEAR WASTE

PRETEST

Directions: Circle the letter of the answer that **BEST** completes the statement.

1. Most of our Nation's electricity comes from:

   a. hydropower, coal, and nuclear energy

   b. coal and nuclear energy

   c. nuclear energy and hydropower

   d. oil and coal

2. The four categories of nuclear waste are:

   a. transuranic, low-level, high-level, and bottom ash

   b. transuranic, low-level, high-level, and mill tailings

   c. bottom ash, low-level, high-level, and mill tailings

   d. low-level, high-level, bottom ash, and mill tailings

3. Of the following, the largest total volume (space occupied) is occupied by:

   a. low-level waste

   b. high-level waste

   c. spent fuel

   d. transuranic waste

4. Permanent disposal of high-level nuclear waste is the responsibility of:

   a. the States where the waste is produced

   b. the electric utilities that produce the waste

   c. the Federal Government

   d. local governments where the waste is produced

5. Radioactivity is:

   a. the emission of heat from a chemical reaction

   b. spontaneous combustion of a material

   c. spontaneous emission of particles and rays by an atom

   d. the emission of light from a chemical reaction

6. The most penetrating type of ionizing radiation emitted by nuclear waste is the:

   a. alpha particle

   b. beta particle

   c. proton

   d. gamma ray

7. Because it deposits more energy per unit path length, the type of radiation most likely to cause biological damage is the:

   a. alpha particle

   b. beta particle

   c. proton

   d. gamma ray

8. In the United States, the source of greatest exposure to radiation for the average person is:

   a. nuclear powerplants and nuclear waste

   b. facilities where nuclear weapons are produced

   c. medical diagnosis and treatment

   d. cosmic rays, rocks, and soil in our natural environment

9. We receive an internal exposure to radiation from the presence of radioactive ____ in our bodies and some essential foods:

   a. oxygen

   b. potassium

   c. hydrogen

   d. iron

10. Radioactive materials become less radioactive over time through the process of:

    a. spontaneous combustion

    b. atomization

    c. chemical reaction

    d. radioactive decay

11. The amount of radiation the average American is exposed to annually from all sources is:

    a. 125 millirem

    b. 360 millirem

    c. 420 millirem

    d. 540 millirem

12. In the Nuclear Waste Policy Act, Congress gave responsibility for the development of a system for safe disposal of high-level nuclear waste to:

    a. the President of the United States

    b. the U.S. Environmental Protection Agency (EPA)

    c. the U.S. Nuclear Regulatory Commission (NRC)

    d. the U.S. Department of Energy (DOE)

13. The Low-Level Radioactive Waste Policy Act is designed to:

    a. make waste less radioactive

    b. require each State to provide for safe disposal of low-level wastes either within the State or a regional compact

    c. encourage States to try new disposal technologies

    d. fund new disposal sites

14. The purpose of site characterization is:

    a. to gather data that can be used to design the repository itself

    b. to gather data that can be used to design the waste container

    c. to gather data needed to determine whether the site is suitable for a repository

    d. all of the above

15. An advantage for a potential repository site would be:

    a. high annual rainfall

    b. nearness to a large city

    c. a repository location in the unsaturated zone

    d. complete absence of zeolites in the rock

16. All countries planning permanent disposal of spent fuel plan some kind of:
    a. geologic disposal deep underground
    b. ocean disposal
    c. above ground repository disposal
    d. spent fuel pool disposal

17. One type of waste that will be disposed of in a deep geologic repository is:
    a. low-level nuclear waste
    b. medical waste
    c. mill tailings
    d. spent fuel

18. The costs of disposing of spent fuel from nuclear powerplants will be paid by:
    a. fees charged to utilities that use nuclear energy to produce electricity
    b. Federal income taxes in States that have nuclear powerplants
    c. State taxes in States that have nuclear powerplants
    d. Federal taxes in States where waste is produced, stored, or disposed of

19. Spent fuel from nuclear powerplants is currently stored in:
    a. 15 States
    b. 28 States
    c. 34 States
    d. 48 States

20. A State being considered for a repository may enter into a Benefits Agreement that entitles the State to:

    a. receive $10 million annually before the repository opens and $20 million annually after it opens

    b. veto any site in the State and prevent its use as a repository forever

    c. name an alternate site in the State for a repository

    d. build and operate a repository itself for profit

21. All transportation of high-level nuclear waste to a repository must be in shipping casks:

    a. certified by the Nuclear Regulatory Commission

    b. tested by the U.S. Department of Transportation

    c. developed by the U.S. Department of Energy

    d. regulated by the Environmental Protection Agency

22. The disposal system will be designed to isolate spent fuel from the environment until the waste is no more dangerous than:

    a. low-level waste

    b. the ore the nuclear fuel came from

    c. solid waste in a municipal landfill

    d. none of the above

23. Waste placed in the repository will be in special:

    a. liquid and glass forms

    b. solid and liquid forms

    c. solid forms

    d. gaseous, solid, and liquid forms

24. The multiple barrier system in the repository is:

    a. a man-made and natural barrier system

    b. the host rock

    c. the solid form of the waste and its container

    d. all of the above

25. One societal challenge of the waste management program is:

    a. the waste will continue to generate heat for many years

    b. the disposal facility must be built to keep the waste isolated from the environment for many years

    c. one State or Indian Tribe will be asked to bear the burden of hosting a waste facility for waste from many States

    d. the waste container must keep the waste isolated from environment for many years